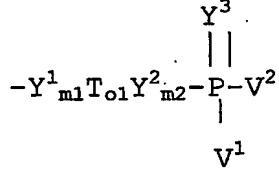


## CLAIMS

1. A coated stent for implantation in human vessels, orifices and conduits for creating and sustaining openings there and for preventing restenosis thereof after implantation comprising a stent structure coated with a compound containing a high density, negatively charged domain of at least three vicinally oriented phosphorus-containing radicals.

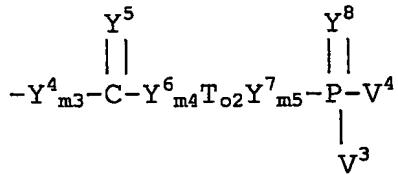
2. A coated stent according to claim 1 wherein the phosphorus-containing radicals have the following formula:

a)



or

b)



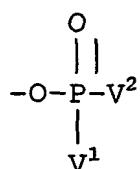
wherein

 $V^1$  to  $V^4$  are  $Y^8_{m6}T_{o3}U$  $T_{o1}$  to  $T_{o3}$  are  $(CH_2)_n$ ,  $CHCH$ , or  $CH_2CHCHCH_2$  $o1$  to  $o3$  are 0 to 1 $n$  is 0 to 4 $U$  is  $R^1Y^9_{m7}$ ,  $CY^{10}Y^{11}R^2$ ,  $SY^{12}Y^{13}Y^{14}R^3$ ,  $PY^{15}Y^{16}Y^{17}R^4R^5$ ,  $Y^{18}PY^{19}Y^{20}Y^{21}R^6R^7$ ,  $CH_2NO_2$ ,  $NHSO_2R^8$  or  $NHCY^{22}Y^{23}R^9$  $m1$  to  $m7$  are 0 to 1 $Y^1$  to  $Y^{23}$  are N  $R^{10}$ , NOR<sup>11</sup>, O or Sand where  $R^1$  to  $R^{11}$  are

- i) hydrogen
- ii) a straight or branched saturated or unsaturated alkyl residue containing 1-22 carbon atoms
- iii) a saturated or unsaturated aromatic or non-aromatic homo- or heterocyclic residue containing 3-22 carbon atoms and 0-5 heteroatoms consisting of nitrogen, oxygen or sulfur
- iv) a straight or branched saturated or unsaturated alkyl residue containing 1-22 carbon atoms substituted with a saturated or unsaturated aromatic or non-aromatic homo- or heterocyclic residue containing 3-22 carbon atoms and 0-5 heteroatoms consisting of nitrogen, oxygen or sulfur
- v) an aromatic or non-aromatic homo- or heterocyclic residue containing 3-22 carbon atoms and 0-5 heteroatoms consisting of nitrogen, oxygen or sulfur substituted with a straight or branched saturated or unsaturated alkyl residue containing 1-22 carbon atoms.

in the said groups ii-v, the residues and/or the substituents thereof being substituted with 0-6 of the following groups: hydroxy, alkoxy, aryloxy, acyloxy, carboxy, alkoxycarbonyl, alkoxycarbonyloxy, aryloxycarbonyl, aryloxycarbonyloxy, carbamoyl, fluoro, chloro, bromo, azido, cyano, oxo, oxa, amino, imino, alkylamino, arylamino, acylamino, arylazo, nitro, alkylthio or alkylsulfonyl.

3. A coated stent according to claim 2 wherein the phosphorus-containing radicals have the following formula:



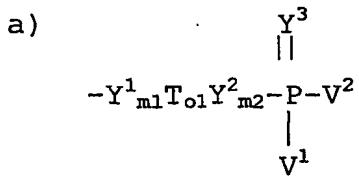
wherein  $V^1$  and  $V^2$  are OH,  $(CH_2)_p$  OH, COOH, CONH<sub>2</sub>, CONOH,  $(CH_2)_p$ COOH,  $(CH_2)_p$ CONH<sub>2</sub>,  $(CH_2)_p$ CONOH,  $(CH_2)_p$ SO<sub>3</sub>H,  $(CH_2)_p$ SO<sub>3</sub> NH<sub>2</sub>,  $(CH_2)_p$ NO<sub>2</sub>,  $(CH_2)_p$ PO<sub>3</sub>H<sub>2</sub>, O(CH<sub>2</sub>)<sub>p</sub> OH, O(CH<sub>2</sub>)<sub>p</sub> COOH, O(CH<sub>2</sub>)<sub>p</sub>CONH<sub>2</sub>, O(CH<sub>2</sub>)<sub>p</sub>CONOH,  $(CH_2)_p$ SO<sub>3</sub>H, O(CH<sub>2</sub>)<sub>p</sub>SO<sub>3</sub>NH<sub>2</sub>, O(CH<sub>2</sub>)<sub>p</sub>NO<sub>2</sub>, O(CH<sub>2</sub>)<sub>p</sub>PO<sub>3</sub>H<sub>2</sub>, CF<sub>2</sub>COOH and p is 1 to 4

4. A coated stent according to claim 3 wherein the phosphorus-containing radicals are phosphate groups.
5. A coated stent according to anyone of claims 1-4 wherein a backbone to the high density negatively charged region of vicinally oriented phosphorus-containing radicals is a cyclic moiety.
6. A coated stent according to claim 5 wherein the backbone is a saturated or unsaturated aromatic or non-aromatic homo- or heterocyclic moiety where the heteroatom is nitrogen, oxygen, sulfur or selenium.
7. A coated stent according to claim 6 wherein the cyclic moiety comprises 4 to 24 atoms, preferably 5 to 18 atoms.
8. A coated stent according to claim 7 wherein the cyclic moiety is selected from the group of cyclopentane, cyclohexane, cycloheptane, inositol, monosacharide, disacharide, trisacharide, tetrasacharide, piperidin, tetrahydrothiopyran, 5-oxotetrahydrothiopyran, 5,5-dioxotetrahydrothiopyran, tetrahydroselenophyran, tetrahydrofuran, pyrrolidine, tetrahydrothiophene, 5-oxotetrahydrothiophene, 5,5-dioxotetrahydrothiophene, tetrahydroselenophene, benzene, cumene, mesitylene, naphtalene and phenanthrene.

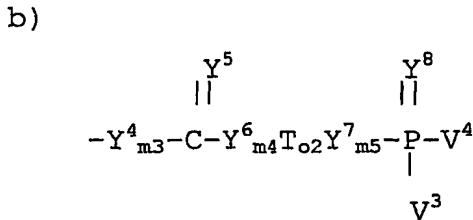
9. A coated stent according to claim 8 where in the cyclic moiety is selected from the group of alloinositol, cisinositol, epiinositol, D/L-chiroinositol, scylloinositol, myoinositol, mucoinositol and neoinositol.
10. The use according to claim 8 wherein the cyclic moiety is selected from the group of D/L-ribose, D/L-arabinose, D/L-xylose, D/L-lyxose, D/L-allose, D/L-altrose, D/L-glucose, D/L-mannose, D/L-gulose, D/L-idose, D/L-galactose, D/L-talose, D/L-ribulose, D/L-xylulose, D/L-psicose, D/L-sorbose, D/L-tagatose and D/L-fructose.
11. A coated stent according to claim 3 wherein one of the phosphorus-containing radicals is axial and, two of the phosphorus-containing radicals are equatorial.
12. A coated stent according to claim 11 wherein the compound is selected from the group of myo-inositol-1,2,6-trisphosphate, myo-inositol-hexa-kis-phosphate, mannose-2,3,4-trisphosphate, rhamnose-2,3,4-trisphosphate, galactose-2,3,4-trisphosphate, methyl-6-O-butyl- $\alpha$ -D-mannopyranoside-2,3,4-trisphosphate, 1,5-anhydro-D-arabinitol-2,3,4-trisphosphate, fructose-2,3,4-trisphosphate, 1,2-O-ethylene- $\beta$ -D-fructopyranoside-2,3,4-trisphosphate, cyclohexane-1,2,3-triol trisphosphate, 1,5-dideoxy-1,5-iminoarabinitol-2,3,4-trisphosphate, altrose-2,3,4-trisphosphate, methyl-6-O-butyl- $\alpha$ -D-altropyranoside-2,3,4-trisphosphate or derivatives thereof.
13. The use a restenosis resistant stent implantation to a human patient comprising the steps of selecting a coated stent for implantation in human vessels, orifices and conduits for creating and sustaining openings there and for preventing, alleviating or combatting restenosis thereof

after implantation, comprising a stent structure coated with a compound containing a high density, negatively charged domain of at least three vicinally oriented phosphorus-containing radicals.

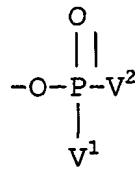
14. The use according to claim 13 wherein the compound containing phosphorus-containing radicals have the following formula:



or



15. The use according to claim 13 where the compound containing phosphorus-containing radicals have the following formula:



16. The use according to claim 13 wherein the compound is selected from the group of myo-inositol-1,2,6-trisphosphate, myo-inositol-hexa-kis-phosphate, mannose-2,3,4-trisphosphate, rhamnose-2,3,4-trisphosphate, galactose-2,3,4-trisphosphate, methyl-6-O-butyl- $\alpha$ -D-mannopyranoside-2,3,4-trisphosphate, 1,5-anhydro-D-arabinitol-2,3,4-

trisphosphate, fructose-2,3,4-trisphosphate, 1,2-O-ethylene- $\beta$ -D-fructopyranoside-2,3,4-trisphosphate, cyclohexane-1,2,3-triol trisphosphate, 1,5-dideoxy-1,5-iminoarabinitol-2,3,4-trisphosphate, altrose-2,3,4-trisphosphate, methyl-6-O-butyl- $\alpha$ -D-altropyranoside-2,3,4-trisphosphate or derivatives thereof.